



SEWG Welcome

Ligia Bernardet (NOAA GSL) and Michael Levy (NCAR)

June 11, 2024

Code of Conduct



New co-chair

- Bill Sacks was the NCAR-based SEWG co-chair for 4 ½ years
 - Thanks for all your hard work, Bill!
- Mike Levy took over in late April / early May
 - Started in CSEG in 2012, moved to Ocean Section in 2016(ish)
 - Fortran work: pulling parameterizations out of POP2 to share with other ocean models (vertical mixing, biogeochemistry), putting them into MOM6
 - Python work: CESM diagnostics, fish model (forced by BGC output)
 - Favorite bug: [CMEPS #432](#) – February 29th is not a good day to run CESM
 - Least-favorite bug: tie between anything dask-related and wasps

Agenda

- 11:00 - 12:30 (right now)
 - Welcome / CESM & NOAA Updates
 - Testing & SE tools
 - Software project details (experiment that updated CAM and POP2)
 - Introducing a CESM GUI
- 12:30 - 1:30 lunch
- 1:30 - 3:00 (later)
 - Remote talks: I/O, infrastructure, DA
 - Lossy compression
 - Diagnostics

← you are here

Agenda

Time	Topic	Speakers
11:00	Welcome and CESM Updates	Mike Levy and Ligia Bernardet
11:15	Implementing CI/CD Philosophy for CTSM; The tale of b4b-dev	Erik Kluzek
11:30	Git Fleximod (replacing manage_externals)	Jim Edwards
11:45	Adding phytoplankton UV inhibition to CESM	Josh Coupe
12:00	visualCaseGen: Streamlining CESM Simpler Modeling Efforts and Beyond	Alper Altuntas
12:30	Lunch Break	
1:30	Asynchronous IO development in the UFS weather model	Jun Wang (remote)
1:45	Modernizing CIME: Enhancing Efficiency and Flexibility in Earth System Modeling	Jason Boutte (remote)
2:00	CESM-DART: Updates on Assimilation for Earth System Models	Helen Kershaw (remote)
2:15	Training Statistical Models to Identify Optimal Lossy Compression Parameters	Alex Pinard
2:30	CUPiD	Teagan King and Mike Levy
2:45	Recent ADF developments and collaboration with CUPiD	Jesse Nusbaumer
3:00	Session End	

← you are (still) here



Wednesday Wrap-Up Session

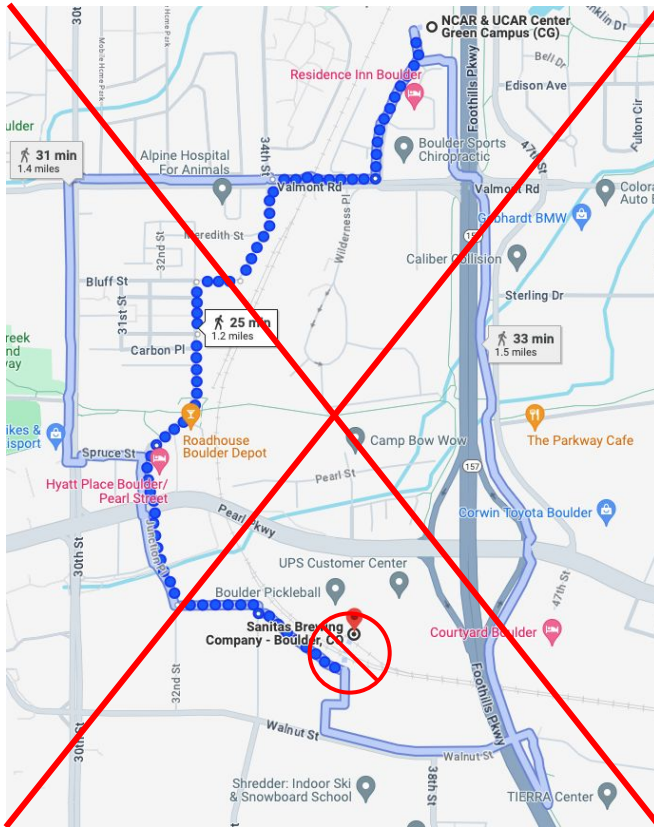
4:30p - 5:30p: Final Discussion

- Questions can be asked in advance via Slido:

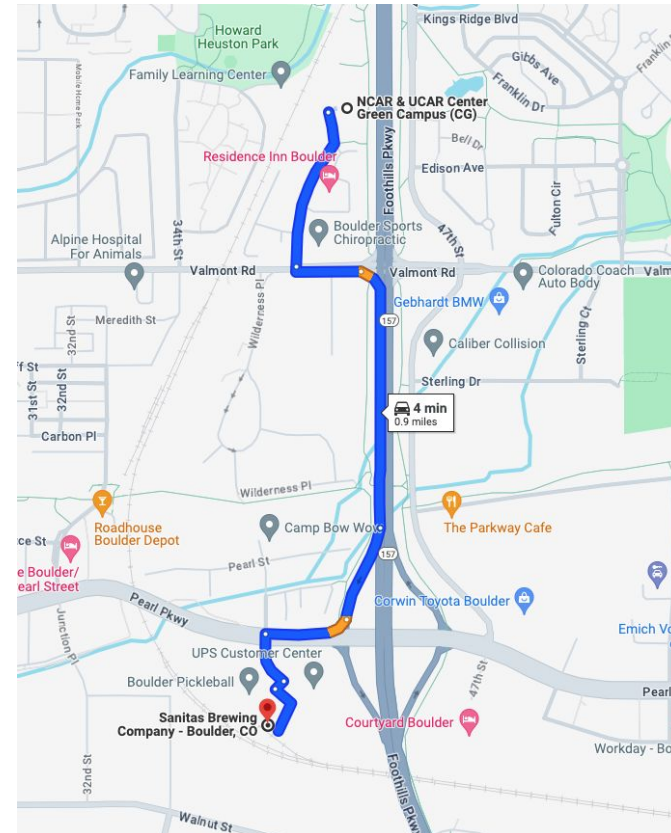


Agenda

CESM Workshop social event tonight, so no SEWG-specific gathering this year
6:00p - 8:00p Sanitas Brewing Company, 3550 Frontier Ave



(Walking - don't let Google lead you over train tracks!)

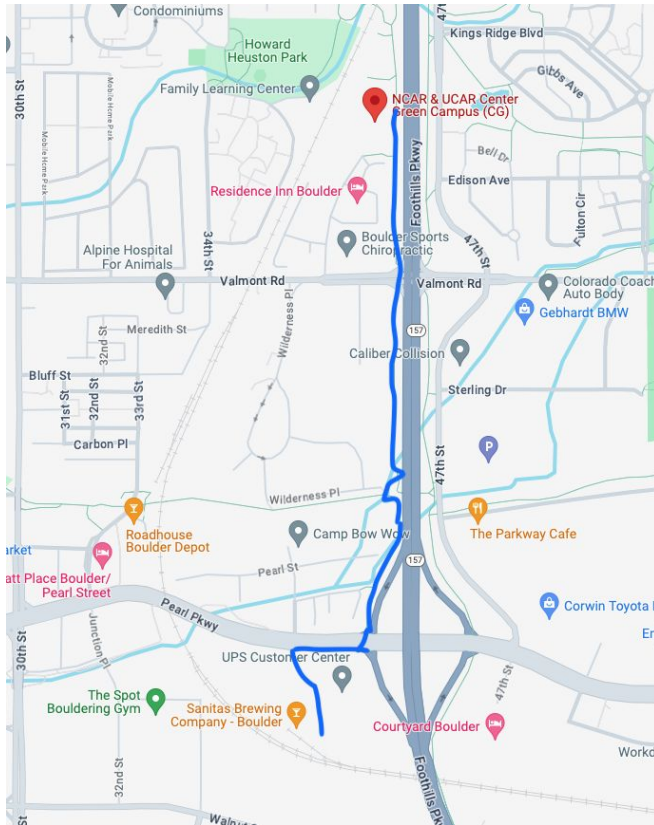


(Driving)

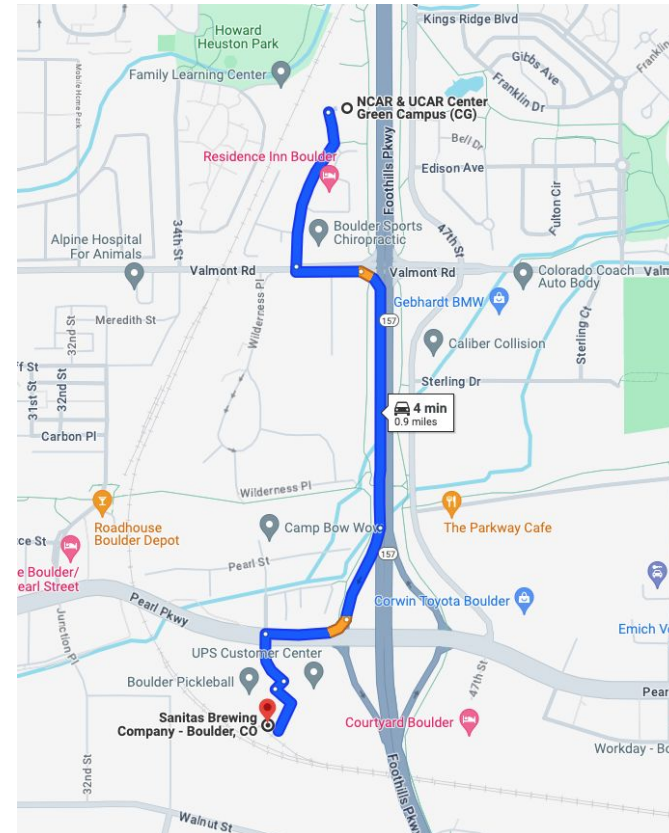


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(Walking - cross Pearl at a crosswalk by Foothills)



(Driving)



CESM Update

Michael Levy

Still June 11, 2024

New Releases

Two new releases in December:

- [CESM 2.1.5](#); 2.1 will be supported until 1 year after next prod release (3.1?)
- [CESM 2.2.2](#), 2.2 will be supported until next release (3.0)
- [Support Policy](#)

Production releases of CESM will be fully supported for five years after the date of the release or for one year after the next production release, whichever period is longer. We will strive to provide limited support beyond that date, particularly for users who started simulations during the support period but then require additional support after the official support period has ended (for example, because a paper reviewer has asked them to run additional simulations). Development releases will be supported only until the next development or production release. More details are provided below.

1. Add support for derecho
2. Update externals that relied on subversion hooks to github (now using sparse git checkout)


Development Changes Since Last Workshop

Infrastructure updates:

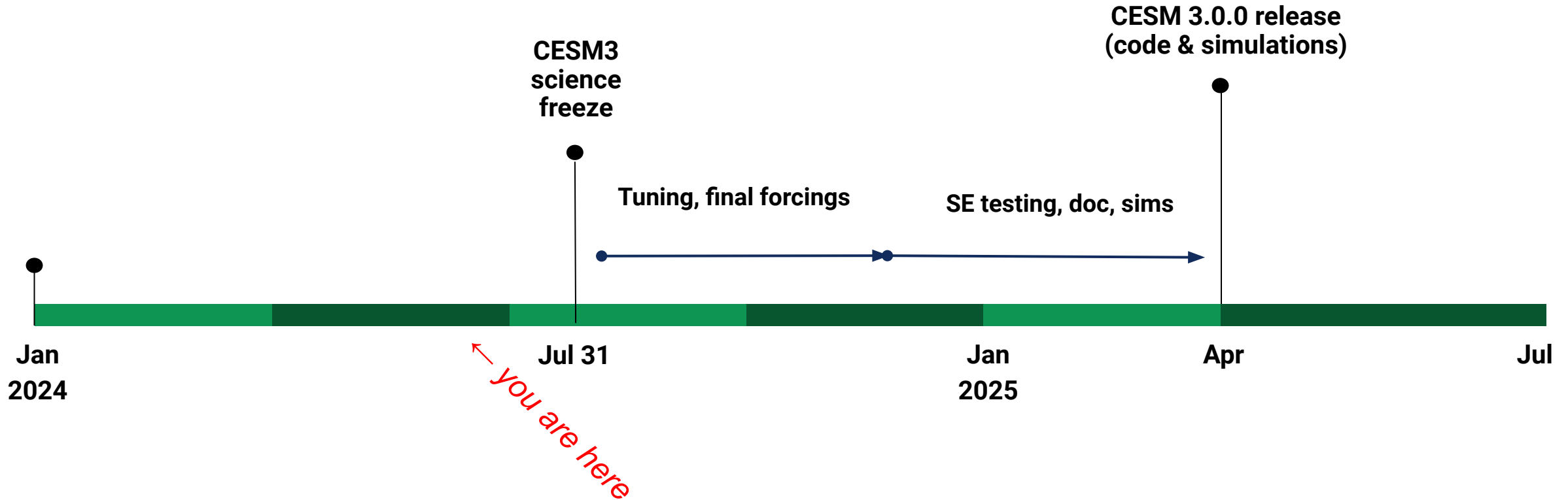
- Support for derecho (dropped cheyenne)
- Updated ESMF library from 8.5.0 -> 8.6.1
 - Basic support for GPUs (accelerator device management & nvhpc compiler support)
 - Basic support for vector regridding (more accurate results, esp in polar regions)
- More infrastructure testing via Github Actions
- Forked FMS into <https://github.com/ESCOMP/FMS>
 - CAM and MOM6 share this library, better able to keep up with GFDL updates
- Removed manage_externals: with all components in git repositories, use flexible extension of git submodules instead [details at 11:30]
- About to tag cesm3_0_beta01

Development Changes Since Last Workshop

Component updates:

- Deprecated MCT-based coupler (cpl7): only NUOPC (CMEPS) in 3.0 release
- Removed POP2: MOM6 is the only active ocean component
- Dropped support for CICE5 (CICE6 is only active sea ice component) and older WW3
- CMEPS supports multiple ice sheets in glc component; CDEPS has dglc now
- CAM
 - Brought in GPU-enabled radiation scheme and cloud microphysics
 - Fixed long-standing issue with time coordinate in history files (instantaneous files have time stamp at time of writing; average files use midpoint of averaging interval) 
- MOM6 uses automated land-block elimination (25% performance gain!) *CICE did too!*
- CTSM
 - Can create surface datasets in parallel, previous tools were serial
 - FATES added “seed dispersal”, first inter-gridcell communication for the model
 - Lots of process improvements (testing, tagging, planning, etc)
 - Added SLIM and mizuRoute

Proposed CESM 3.0 Timeline



Rough timeline

- Science freeze later this summer: tuning adjustments continue
- Code freeze in the late fall / early winter: code tested, documentation finalized
- Release in early spring





NOAA Update

Ligia Bernardet

Still June 11, 2024

Unified Forecast System (UFS)



- **Community model supported by EPIC**
- **Apps:** Short-Range Weather, Hurricanes, Medium-Range Weather, Subseasonal, Seasonal, Air Quality, Coastal
- **Coupled global or limited-area model**
 - **Atm:** FV3 dycore + CCPP Physics
 - MOM6, CICE, WAVEWATCH, LSMs (RUC, Noah, Noah-MP), atmos composition
- **Other infrastructure connections with CESM**
 - CMEPS, CDEPS, ESMF, FMS, workflow, ..., managed_externals
 - Exploring inclusion of MPAS-A dycore

